

Application Number 10/807,822

Amendment in response to Office Action mailed March 18, 2008

REMARKS

This Amendment is responsive to the Office Action dated March 18, 2008. Applicant has amended claims 1, 12, 17 and 18, and canceled claim 9. Claims 1-8 and 10-20 are now pending.

In the Office Action, the Examiner objected to claim 9 as being dependent on a rejected base claim, but indicated that the claim includes subject matter that would be allowable if rewritten in independent form. In this amendment, Applicant has amended the independent claims to recite the subject matter of claim 9. Although Applicant has not included the subject matter of the intervening claims into the independent claims, Applicant believes that the current amendments are more than sufficient to distinguish the features of the pending claims from the applied prior art.

Applicant generally disagrees with the rejections advanced in the Office Action, but has nevertheless amended the independent claims to recite the subject matter of claim 9 in order to expedite prosecution of this application to immediate issuance. The independent claims are explained in greater detail below.

Claim Rejections Under 35 U.S.C. § 112

In the Office Action, the Examiner rejected claims 17-20 under 35 U.S.C. 112, second paragraph, as being indefinite. In response, Applicant has amended claim 17 to properly depend from claim 12, which should obviate the Examiner's concerns.

Claim Rejections Under 35 U.S.C. § 102 and 35 U.S.C. § 103

In the Office Action, the Examiner rejected claims 12 and 13 under 35 U.S.C. 102(b) as being anticipated by Ohtomo (US 5,763,037). The Examiner rejected claims 1, 3 and 4 under 35 U.S.C. 103(a) as being unpatentable over Ohtomo; rejected claims 2, 5 and 14 under 35 U.S.C. 103(a) as being unpatentable over Ohtomo in view of Urbach (US 3,560,205); rejected claims 6, 7, 8, 10 and 11 under 35 U.S.C. 103(a) as being unpatentable over Ohtomo in view of Peeters (US 4,394,661); and rejected claim 15 under 35 U.S.C. 103(a) as being unpatentable over Ohtomo in view of Nakane.

Applicant respectfully traverses the rejections. The prior art fails to disclose or suggest the inventions of Applicant's claims and provides no teaching that would have led a person of

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ordinary skill in the art to arrive at the features of Applicant's claims. As noted above, however, even though Applicant believes that the rejections were improper, Applicant has nevertheless amended the independent claims to recite the subject matter of dependent claim 9, which the Examiner indicated as being allowable. As explained above, Applicant has not included the subject matter of the intervening claims into the independent claims because Applicant believes that the current amendments are more than sufficient to distinguish the pending claims for the applied prior art.

Independent claim 1 recites a method of creating a data storage disk master. The method of claim 1 comprises creating a plurality of three or more equally spaced and focused laser spots, and simultaneously illuminating a photoresist layer of the master with the plurality of focused laser spots to photolithographically expose a plurality of tracks of the master such that track pitch variations on the master are less than five nanometers.

Independent claim 12 also recites a method of creating a data storage disk master. The method of claim 12 comprises creating an interference pattern from laser light, the interference pattern defining a plurality of constructive interference fringes, and simultaneously illuminating a photoresist layer of the master with the plurality of constructive interference fringes of the interference pattern to expose a plurality of tracks of the master such that track pitch variations on the master are less than five nanometers.

The applied prior art fails to disclose or suggest any technique for simultaneously illuminating a photoresist layer of a master with either three or more laser spots or with a plurality of constructive interference fringes to photolithographically expose a plurality of tracks. Specifically, the applied prior art also fails to disclose or suggest such a technique of simultaneously using three or more focused laser spots, as required by claim 1, or using an interference pattern that simultaneously defines a plurality of constructive interference fringes, as required by claim 12. On the contrary, the applied prior art discloses conventional mastering techniques in which individual laser spots are used to photolithographically expose a given feature.

FIGS 2A-2C of the Ohtomo reference (which the Examiner relied upon) illustrate the conventional approach. In this case, laser light 3 creates a feature 4, and may be translated side to side in order to create additional features.

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FIG.2a



FIG.2b

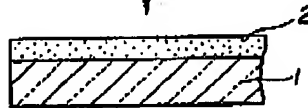
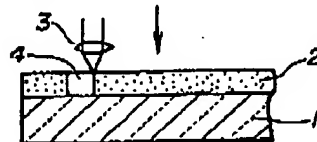


FIG.2c



In contrast to this conventional approach of Ohtomo, Applicant's claimed invention simultaneously illuminates a photoresist layer of a master to photolithographically expose a plurality of tracks. Applicant's disclosure provides two different ways to perform this simultaneous illumination to photolithographically expose a plurality of tracks. In the first example, three or more equally spaced and focused laser spots are used, as required by claim 1. This first example is illustrated e.g., in FIGS. 2 and 3 of the present application (only FIG. 2 is reproduced below).

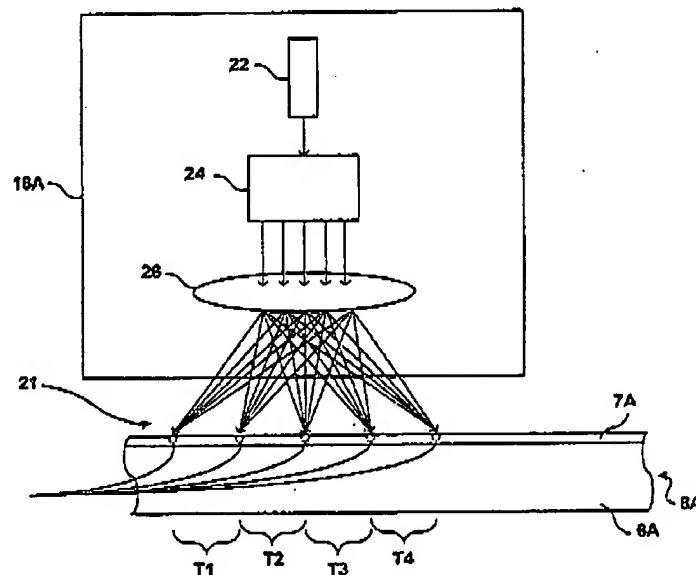


FIG. 2

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In the second example, an interference pattern is used to define a plurality of constructive interference fringes, as required by claim 12. This second example is illustrated e.g., in FIG. 4 of the present application.

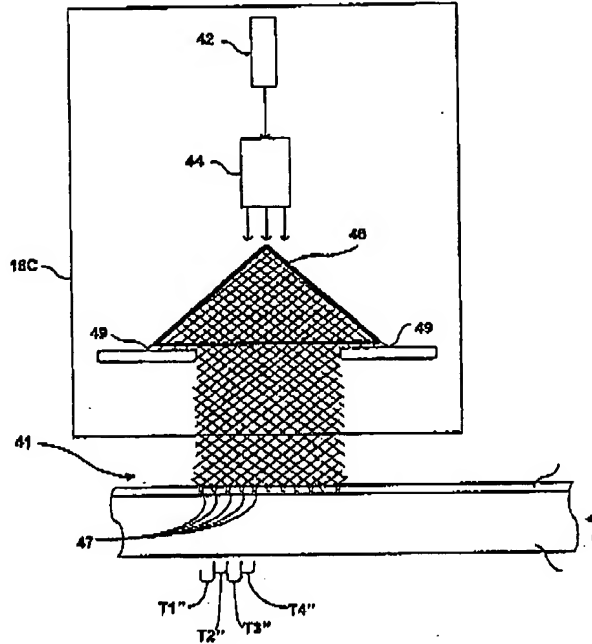


FIG. 4

Applicant's disclosure outlines the advantages of these claimed approaches, which again require the simultaneous illumination of a photoresist layer of a master to photolithographically expose a plurality of tracks. In particular, the simultaneous illumination to photolithographically expose a plurality of tracks allows for improved track pitch variations, e.g., less than 5 nanometers, less than 2 nanometer, or even less than 1 nanometer.

In order to clarify the claimed invention, Applicant has amended the independent claims to require that the track pitch variations are less than 5 nanometers, which was formerly recited in claim 9. The Examiner has not identified any prior art that would anticipate the former independent claims or render such claims obvious. However, given that the Examiner has apparently recognized that the prior art lacks any suggestion of techniques for achieving track pitch variations less than 5 nanometers, Applicant is willing to make the current claim amendments in order to quickly expedite the case to immediate issuance.

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The various secondary references cited by the Examiner do not overcome the deficiencies of Ohtomo addressed above. The Urbach reference relates to holography, not optical mastering, and fails to disclose or suggest the simultaneous illumination of a photoresist layer of a master to photolithographically expose a plurality of tracks. The Nakane reference concerns optical disk readout, not optical mastering, and fails to disclose or suggest the simultaneous illumination of a photoresist layer of a master to photolithographically expose a plurality of tracks.

The Peeters reference concerns optical disk recording, not optical mastering. While the Peeters reference does appear to show the use of two different lasers, these two different lasers are not used to simultaneously illuminate a photoresist layer of a master to photolithographically expose a plurality of tracks.

Conclusion

In view of the claim amendments and foregoing comments, Applicant respectfully submits that all claims in this application are in condition for allowance. Applicant respectfully requests reconsideration and prompt allowance of all pending claims.

Applicant does not acquiesce to any of the rejections or interpretations of the prior art, and Applicant reserves the right to present additional arguments. Applicant also reserves the right to present additional claims (including the original claims) in one or more continuation applications.

Please charge any additional fees or credit any overpayment to deposit account number 09-0069. The Examiner is invited to telephone the below-signed attorney to discuss this application.

Date:

By:

6/6/8

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